We Claim :

1. A device for optically connecting two coaxially opposingly disposed optical fibers for the purpose of transmission of an optical signal, the device comprising a ferrule, said ferrule comprising:

   a) a longitudinally extending cylindrical body made of Shape Memory Material (SMM), said body having a middle portion, said middle portion having a first end and a second end, a first connection clamp and a second connection clamp, said connection clamps are located on either end of said middle portion, each connection clamp having a free end associated therewith, said body and said connection clamps also having a bore that traverses a central axis through said connection clamps and said middle portion, and said bore having a diameter slightly smaller than the diameter of the optical fibers to be connected,

   b) said body also having one of more pairs of longitudinal slots that traverse the diameter of said body, each of said pair of slots beginning within a connection clamp and extending to the free end of the other connection clamp, and wherein, if there is more than one pair of slots, at least one pair of the slots commence at a same connection clamp different from that of the at least other pair of slots; and

   c) a first cap and a second cap comprising a wire whose diameter is approximately the same as the diameter of the optical fiber, said cap wires are inserted into the said bore of the said body, and said cap wires are penetrating into the ferrule from each side, and said cap wires are abutted on each other at the middle of the length of the body of the ferrule.

2. The device of claim 1, wherein each of said connection clamps have, at their respective free ends, a conic end penetrating along the axis of each said connection clamp.

3. The device of claim 1, wherein said middle portion has conic grooves forming a ring around the junction between the first and second connection clamp and the middle portion, said conic grooves penetrating inside the first and second connection clamps.

4. The device of claim 1 wherein said pairs of slots form an angle which value is between 25° and 90°.

5. A tool for deforming a device of the type defined in claim 1, the tool comprising:

a) two internal grips that engage with the ends on the middle portion of the ferrule of claim 1;

b) two external grips that engage with the free end of the connecting clamps of the ferrule; and

c) said internal and said external grips being traversed by a passage that allows optical fibers and cap wires to be removed from the ferrule or inserted in said ferrule.

6. A tool for deforming a device of the type defined in claim 1, the tool comprising:

a) two internal grips shaped in a conical point that engage with the complementary sections of the conic grooves on the middle portion of the ferrule of claim 3;

b) two exterior grips that engage with the conic ends located at the free end of the connecting clamps of the ferrule of claim 2;

c) said conical point of the said internal grip and said external grips being traversed by a passage that allows optical fibers and cap wires to be removed from the ferrule or inserted in said ferrule.

7. A method of using the device of claim 1, in combination with the tool of claim 5, the method comprising the steps of :

a) engaging the two internal grips on the tool with the ends of the middle portion of the ferrule causing the slots and the diameter of the bore to expand at said middle portion;

b) engaging a first external grip of the tool with the first connection clamp of ferrule, which causes the diameter of the bore in the first connection clamp to increase,

c) removing the first cap wire from the first connection clamp and inserting a first optical fiber into the bore until it is abutted against the second cap

wire, said second end being maintained in position by the second connection clamp;

d) removing the first external grip so that the first connection clamp on the ferrule closes on the first fiber and maintains it in place;

e) engaging the second external grip of the tool with the second connection clamp of ferrule, which causes the diameter of the bore in the second connection clamp to increase;

f) removing the second cap wire from the second connection clamp and inserting a second optical fiber into the bore, and said second optical fiber is abutted against the first optical fiber;

g) removing the second external grip from the second connection clamp of ferrule so that the second connection clamp of the ferrule close on the second optical fiber and maintains it in place; and

h) removing the two internal grips from the ends of the middle portion of ferrule, causing the middle portion of the bore to shrink on the optical fibers to centre them in front of each other for light transmission, and at the same time causing that length of the middle portion of ferrule to decrease, said length decrease creating sufficient force to firmly abut the fibers end on each other for light transmission.

8. A method of using the device of claim 1, in combination with the tool of claim 6, the method comprising the steps of :

a) engaging the two internal grips on the tool with the complementary conic grooves located at the ends of the middle portion of the ferrule causing the slots and the diameter of the bore to expand at said middle portion;

b) engaging a first external grip of the tool with the conic end on the first connection clamp of ferrule, causing the diameter of the bore in the first connection clamp to increase,

c) removing the first cap wire from the first connection clamp and inserting a first optical fiber into the bore until it is abutted against the second cap wire, said second end being secured in position by the second connection clamp;

d) removing the first external grip so that the first connection clamp on the ferrule closes on the first fiber securing it in place;

e) engaging the second exterior grip of the tool with the conic end on the second connection clamp of ferrule, causing the diameter of the bore in the second connection clamp to increase;

f) removing the second cap from the second connection clamp and inserting a second optical fiber into the bore, and said second optical fiber is abutted against the first optical fiber;

g) removing the second external grip from the conical extremity of the second connection clamp of the ferrule so that the second connection clamp of the ferrule closes on the second optical fiber securing it in place; and

h) removing the two internal grips from the two conical grooves of the middle portion of ferrule, thereby causing the middle portion of the bore to shrink on the optical fibers to centre them in front of each other for light transmission, and at the same time causing the length of the middle portion of the ferrule to decrease, said length decreasing to create sufficient force to firmly abut the fibers end on each other for light transmission.

9. A method of using the device of claim 1, in combination with the tool of claim 5, to remove the fibers in order to reuse the device.

10. A method of using the device of claim 1, in combination with the tool of claim 6, to remove the fibers in order to reuse the device.

11. A method of using the device of any one of claims 2 and 3, in combination with the tool of claim 5, to remove the fibers in order to reuse the device.

12. A method of using the device of any one of claims 2 and 3, in combination with the tool of claim 6, to remove the fibers in order to reuse the device.